

07/03/526 Rec'd PCT/PTO 30 JUN 2000

|   |  |   |
|---|--|---|
| FORM PTO-100<br>(REV. 5-93)   | U.S. DEPARTMENT OF COMMERCE<br>PATENT AND TRADEMARK OFFICE | ATTORNEY'S DOCKET NUMBER<br>1313/1G310-US |
| TRANSMITTAL LETTER TO THE UNITED STATES<br>DESIGNATED/ELECTED OFFICE (DO/EO/US) |  | 09/582830                                 |
| INTERNATIONAL APPLICATION NO.<br>PCT/JP98/01022                                 | INTERNATIONAL FILING DATE<br>23 December 1998              | PRIORITY DATE CLAIMED<br>02 January 1998  |

TITLE OF INVENTION  
**METHOD OF PACKAGING A WEB, AND A PACKAGE PRODUCED THEREBY**

APPLICANT(S) FOR DO/EO/US  
**Paavo HYVARINEN, Tapio NIEMI and Jarmo MAKINEN**

Applicant herewith submits to the United States Designated/Elected office (DO/EO/US) the following items and other information:

- 1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
- 2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S. C. 371.
- 3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371 (f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S. C. 371 (b) and PCT Articles 22 and 39 (1).
- 4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
- 5. ☒ A copy of the International Application as filed (35 U.S. C. 371 (c) (2) )
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
- 6. ☐ A translation of the International Application into English (35 U.S. C. 371 (c)(2)).
- 7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
- 8. ☒ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c) (3)).
- 9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (unsigned).
- 10. ☒ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

- Items 11. to 16. below concern other document(s) or information included:
- 11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98 (with references).
  - 12. ☐ An assignment document for recording. A **separate** cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
  - 13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
  - 14. ☐ A substitute specification.
  - 15. ☐ A change of power of attorney an/or address letter.
  - 16. ☐ Other items or information:

EXPRESS MAIL CERTIFICATE  
6/30/00 628221343  
Date Label No.  
I hereby certify that, on the date indicated above I  
deposited this paper or fee with the U.S. Postal Service  
& that it was addressed for delivery to the Commissioner  
of Patents & Trademarks, Washington D.C. 20231 by  
"Express Mail Post Office to Addressee" service.  
DB Peck  
Name (Print) Signature

U.S. APPLICATION NO. (if known sec 37 C.F.R. 1.50)

09/582830

INTERNATIONAL APPLICATION NO.: PCT/FI98/01022

Attorney's Docket Number  
^C

17. [x] The following fees are submitted:

**Basic National Fee (37 CFR 1.492 (a)(1)-(5)):**Search Report has been prepared by the EPO ☐ or JPO ☐

\$840.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)

\$670.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482)  
but international search fee paid to USPTO (37 CFR 1.445 (a) (2))...

\$690.00

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO...XXX.....

\$970.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(2)-(4).....

\$96.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$970.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐20 ☐30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$

| Claims             | Number Filed | Number Extra | Rate        |    |  |
|--------------------|--------------|--------------|-------------|----|--|
| Total Claims       | 14-20        | 0            | 0 X \$18.00 | \$ |  |
| Independent Claims | 2-3          | 0            | 0 X \$78.00 | \$ |  |

Multiple dependent claims(s) (if applicable)

+ 260

\$

TOTAL OF ABOVE CALCULATIONS =

\$970.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$

SUBTOTAL =

\$970.00

Processing fee of \$130.00 for furnishing the English translation later the ☐ 20 ☐ 39  
months from the earliest claimed priority date (37 CFR 1.492(f)).

+

\$

TOTAL NATIONAL FEE =

\$970.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). the assignment must be accompanied by an  
appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

+

\$

TOTAL FEES ENCLOSED =

\$970.00

Amount to be  
refunded

\$

charged:

\$

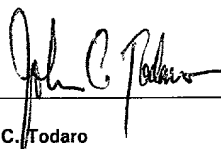
a. [X] A check in the amount of \$970.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No.04-0100 in the amount of \$ to cover the above fees.c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit  
Account No. 04-0100. A duplicate copy of this sheet is enclosed.**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed  
and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

Robert C. Sullivan, Jr.  
Darby & Darby P.C.  
805 Third Avenue  
New York, New York 10022-7513

SIGNATURE



NAME John C. Todaro

REGISTRATION NO. 36,036

EXPRESS MAIL CERTIFICATE

Date 6/30/00 Label No. 628221343

I hereby certify that on the date indicated above I deposited this paper and/or fee with the U.S. Postal Service and that it was addressed for delivery to: Commissioner of Patents and Trademarks, Washington, D.C. 20231 by "Express Mail Post Office to Addressee" service.

Name

Signature

1313/1G310-US0

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Paavo HYVARINEN, Tapio NIEMI and Jarmo MAKINEN

Serial No: t/b/a (U.S. National Phase of International Application  
No. PCT/FI98/01022 - Filed 23 Dec. 1998)

Filed: Concurrently Herewith

For: METHOD OF PACKAGING A WEB, AND A PACKAGE  
PRODUCED THEREBY

Honorable Commissioner of  
Patents and Trademarks  
BOX PCT  
Washington, D.C. 20231  
Attn.: DO/EO/US

**PRELIMINARY AMENDMENT**

Sir:

Prior to examination, applicants wish to amend the above-identified  
international application as follows:

**In the Claims:**

Please cancel claims 1-11 without prejudice.

Please add new claims 12-25.



09/582830

30 JUN 2000

12. (Newly Added) A method of packaging a web, the method comprising:

slitting the web into two or more narrower webs; and

folding the two or more narrower webs into superimposed layers by:

directing the two or more narrower webs to a nip formed by first and second rotating reels,

inducing the two or more narrower webs to move with the first and second rotating reels a length of a predetermined rotational angle to provide folding of the two or more narrower webs by holding the two or more narrower webs alternatively against surfaces of the first and second rotating reels, and

joining ends of the two or more narrower webs together so that the two or more narrower webs form a continuous whole whose length corresponds to a combined length of the two or more narrower webs.

13. (Newly Added) The method as claimed in claim 12, wherein joining the ends of the two or more narrower webs comprises joining a forward/tail end of an outermost web to a forward/tail end of an adjacent web, whose forward/tail end is joined to a forward/tail end of a next adjacent web, the joining process continuing until all of the webs are joined to form a continuous whole whose length corresponds to the combined length of the two or more narrower webs.

14. (Newly Added) The method as claimed in claim 12, wherein joining the ends of the two or more narrow webs comprises joining forward/tail ends of the two or more narrower webs in pairs to form a stack, the pairs being formed at one end of the webs beginning with an outermost web, and at the other ends the pairs being formed starting from the web next to the outermost web, the webs of the stacks forming a continuous whole whose length corresponds to the combined length of the two or more narrower webs.

15. (Newly Added) The method as claimed in claim 12, wherein holding the two or more narrower webs comprises holding the webs against the surfaces of the first and second rotating reels by mechanical engagement of the web by means disposed on the surfaces of the first and second rotating reels.

16. (Newly Added) The method as claimed in claim 15, wherein the means comprises at least one mechanical gripper and at least one projection extending outwardly from a periphery of the first and second rotating reels.

17. (Newly Added) The method as claimed in claim 12, wherein holding the two or more narrower webs comprises holding the webs against the surfaces of the first and second rotating reels by mechanical engagement of the web by suction using underpressure.

18. (Newly Added) The method as claimed in claim 12, wherein joining of the ends of the two or more narrower webs comprises joining the ends together using one or more process selected from the group consisting of sewing, taping, gluing, needling, hot sealing, ultrasound sealing, and stapling.

19. (Newly Added) A package for packaging a web formed of two or more narrower webs, the package comprising:

two or more side-by-side stacks of superimposed web layers formed by folding the web so that ends of the two or more narrower webs in the stacks are joined together so that the two or more narrower webs form a continuous whole whose length corresponds to a combined length of the two or more narrower webs.

20. (Newly Added) The package as claimed in claim 19, wherein the ends of the two or more narrower webs are joined together by joining a forward/tall end of an outermost web to a forward/tall end of a next adjacent web, the joining process continuing until all of the two or more narrow webs are joined to a continuous whole whose length corresponds to the combined length of the two or more narrower webs.

21. (Newly Added) The package as claimed in claim 19, wherein forward and tail ends of the two or more narrower webs are joined together in pairs, the pairs being formed at one end of the webs beginning with an outermost web, and at the other ends the pairs being formed starting from the web next to the outermost web, the webs of the stacks forming a continuous whole whose length corresponds to the combined length of the two or more narrower webs.

22. (Newly Added) The package as claimed in claim 19, wherein the ends of the webs are joined together using one or more process selected from the group consisting of sewing, taping, gluing, needling, hot sealing, ultrasound sealing, and stapling.

23. (Newly Added) The package as claimed in claim 19, further including:  
a solid outer casing disposed about the two or more side-by-side stacks.

24. (Newly Added) The package as claimed in claim 23, wherein the solid outer casing is formed of one of corrugated cardboard and plastic film.

25. (Newly Added) The package as claimed in claim 23, wherein forward and tail ends of the joined continuous web are disposed outside of the solid outer casing.

**REMARKS**

Original claims 1-11 have been canceled and new claims 12-25 have been substituted therefor.

Entry of this amendment is respectfully requested.

Respectfully submitted,



---

Edward Ellis  
Reg. No. 40,389  
Attorney for Applicant(s)

Darby & Darby P.C.  
805 Third Avenue  
New York, New York 10022  
(212) 527-7700



**METHOD OF PACKAGING A WEB, AND A PACKAGE PRODUCED THEREBY**

The invention relates to a method of packaging a web and to a package produced by the method.

Webs intended for sanitary products are typically made from natural  
5 fibers, such as wood fibers, and synthetic fibers or mixtures thereof, by binding the web by binders or bonding fibers. All web production methods are feasible, such as different wet and dry methods, including what is known as dry web forming and carding. By a web machine, such as a dry web machine, the web is typically reeled to what is known as a jumbo reel, which is then longitudinally  
10 slit into narrower reels of a desired width. During production, these narrower reels are distributed and fed to a preparing machine. However, the width of the web used in the preparing machine may be as narrow as 30 mm, and reeled as a round reel it does not hold together very well, and, most importantly, contains a comparatively small amount of web material. This is why  
15 reels have to be changed very often, even at intervals of a few minutes, when web is fed to the preparing machine. It is uneconomical to transport web either as a jumbo reel or as narrower reels formed by slitting, since relatively much waste space is bound to remain between the round reels.

**SUMMARY OF THE INVENTION**

20 It is an object of the present invention to produce a novel method and a package produced thereby for packaging a web, which avoid the above problems mainly relating to the use of round web reels in preparing machines and the transport of same to preparing machines. This is achieved by the method of packaging a web according to the invention, in which method a web  
25 is slit into two or more narrower webs which are folded into superimposed layers. The method is characterized by comprising the steps of directing the webs to a nip formed by two rotating reels and by inducing the webs, held against the surfaces of the first and the second reel, to move with the reel alternately the length of a predetermined rotational angle to provide folding, and  
30 joining the ends of the webs together so that the webs form a continuous whole whose length corresponds to the combined length of the webs. Thus the web material forms a single continuous whole which can also be distributed as a continuous web during further processing. Webs obtained by slitting from a wide web can be joined together at their ends in principle in two alternative  
35 ways, either by joining the forward end of a web and the forward end of

an adjacent web together or by joining together the ends of adjacent webs in pairs. In the former case, the web is continuously distributed in the same direction and in the latter, alternately in opposite directions. In practice, this manner of distributing may affect the operation of the further processing device of the web.

The package for packaging web according to the invention is in turn characterized by comprising two or more side-by-side stacks of superimposed web layers formed by folding the web, the ends of the webs in the stacks being joined together so that the webs form a continuous whole whose length corresponds to the combined length of the webs.

The package preferably comprises around the stacks a solid outer casing made from e.g. corrugated cardboard or plastic film.

When the method and package of the invention are used, the web material placed in a substantially parallelepiped-shaped package constitutes one continuous web which can be distributed as a continuous whole by a preparing machine. This avoids the need for frequent reel changes. The package is generally parallelepiped-shaped, completely filled by the material to be packaged, allowing a very high packaging density during web transport.

The forward and tail ends of the joined continuous web in the package of the invention preferably extend to the outside of the outer casing of the package to allow webs in several packages to be easily combined to a single still longer whole e.g. in view of distributing by a preparing machine.

#### LIST OF DRAWINGS

In the following the method and package of the invention will be described in greater detail with reference to the attached drawing, in which

Figure 1 schematically shows a first exemplary embodiment of an equipment utilizing the method of the invention,

Figure 2 schematically shows a second exemplary embodiment of an equipment utilizing the method of the invention, and

Figure 3 schematically shows the operational principles of the method of the invention.

#### DETAILED DESCRIPTION OF THE INVENTION

Figure 1 schematically shows an exemplary embodiment of a packaging equipment utilizing the method of the invention. A web 1, typically made e.g. by dry forming from natural fibres, such as wood fibre, and synthetic fibres

or mixtures thereof by binding the web by a binder or binding fibres, is led to a packaging equipment employing the method of the invention. The equipment shown in Figure 1 comprises folding reels 3, the reels being placed in a vertical position. As will be described in more detail in association with Figure 3, while folding it, the reels pull the web 1 into a packing box 7. Before the web 1 enters the folding reels, it is slit by slit blades 6 into webs 2a to 2e of a desired width. The widths of the webs 2a to 2e typically vary between 200 and 30 mm, and hence the number of webs varies correspondingly with the web width used and the desired web width. Such webs are typically used in the production of sanitary products, such as sanitary napkins, panty liners, diapers etc.

The webs 2a to 2e are directed to a nip formed by two rotating reels 3a and 3b, and induced, held alternately against the surfaces of the first and second reel, to shift with the reel the length of a predetermined rotational angle to provide folding, as is shown in Figure 3. The folding reels 3, comprising two folding reels 3a and 3b rotating in opposite directions, simultaneously pulls the web 1 forward. The webs 2a to 2e are held against the surface of the reel by mechanical engagement of the web by means 9 and 10 disposed on the surface of the reel and/or by suction using underpressure, the surface of the reel being perforated in the angle area covering at least part of the surface of the reel.

The ends of the slit webs must be joined together for the slit webs to form a continuous whole. In principle, two alternative methods can be used to join the webs. The first method involves joining the forward/tail end of the outermost web to the forward/tail end of the adjacent web, whose forward/ tail end is joined to the forward/tail end of the next web, the process continuing until all webs are joined to a continuous whole whose length corresponds to the combined length of the webs. In this method the webs are not joined until after folding, and therefore they cannot be folded directly into the package, such as a cardboard box or a plastic bag. This method allows the folded continuous whole formed by the joined web stacks to be placed in the package only after the ends are joined. An advantage of this method is that the distributing direction remains the same throughout the distributing of the web from the package. If the stacks formed by the webs 2a to 2e are side by side during distributing, the outermost web can be distributed first from top to bottom, and

since the tail end of the web is joined to the forward end of the adjacent web, said adjacent web can also be distributed from top to bottom.

An alternative joining method, which is suitable for folding directly into a package, as shown by Figures 1 and 2, is to join together the forward and tail ends of the webs 2a to 2e in pairs, the pairs being formed at one end of the webs starting from the outermost web 2a, and at the other ends of the webs the pairs are formed starting from the next to the outermost web 2b. In this case in the embodiment of e.g. Figure 1, the pairs of forward ends of the webs are formed from the webs 2a and 2b, and the webs 2c and 2d. These ends are joined together preferably before folding, so that these ends no longer have to be dug up from the bottom of the package after the webs have been folded directly into the package, which would be possible e.g. via a packing box bottom that could be opened. When starting the folding into the packing box 7, the forward end of the web 2e, which can be thought to form the last portion of the continuous web to be formed to the package, i.e. the end remaining at the bottom, can be left visible if desired, to allow joining it to one end of a continuous web disposed in another similar package.

After the forward ends of the webs have been joined, the folding reels 3 start to pull the web into the packing box simultaneously folding it into superimposed layers, denoted by reference number 4 in Figure 3. By correct dimensioning of the reels 3a and 3b of the folding reels 3 and the packing box 7, the box can be filled by precisely superimposed layers of folded web 1. Once the packing box 7 is filled, the web 1 is cut and the free tail ends of the webs 2a to 2e are joined together in pairs, the pairs being formed starting from the second outermost web 2b. The webs 2b and 2c are consequently joined together, and similarly the webs 2d and 2e are joined together at their tail ends. In this way several side-by-side stacks, denoted by reference number 5 in Figure 3, are formed in the packing box 7 by folded superimposed web layers 4, the forward and tail ends of the webs in the stacks being joined together in pairs so as to form a continuous whole whose length corresponds to the combined length of the webs 2a to 2e. When the package is being closed, the free end of the web 2a, which can be thought to form the first part of the continuous web to be formed into the package, i.e. the end on top of the package, is left visible to enable one end of a web in a similar package to be joined to it.

When the package of the invention, i.e. the packing box 7 in the case of Figures 1 and 2, is conveyed to a preparing machine, it will be possi-

ble to distribute the webs from the package as a single continuous whole. In practice, as the box was packed via side 7b, this is accomplished by opening side 7a of the box 7. By grabbing the free end of the web 2a, the entire web 2a can be distributed from the end 7. As described above, its tail end is joined to the tail end of the web 2b, and consequently the web 2b starts to distribute from the package as the end of the web 2a is reached. In this way all webs 2a to 2e are distributed from the package as a continuous whole. When packing boxes 7 are placed in succession on a conveyor and the visible forward end of a web therein is joined to the visible tail end of the web in the preceding packing box, and, similarly, the visible tail end is joined to the visible forward end of the web in the next packing box, several packages can be chained on the conveyor, and the preparing machine does not have to be stopped even when the web starts to distribute from a new package.

Figure 2 shows a second exemplary embodiment of an equipment implementing the packaging method of the invention, with the folding reels placed in a vertical position. Other parts of the equipment and its structure and operation completely correspond to those of the equipment shown in Figure 1. It is obvious that when studying the folding procedure of Figure 3 in particular, that the equipment of Figure 2 can easily fold the webs in the desired manner into adjacent stacks into a packing box 7. The equipment shown in Figure 1 also operates in the same manner, and this is because the material of the web 1 is typically very light, the effect of gravity thereon remaining very slight, particularly considering that the travel speed of the web 1 is assumed to be up to 400 meters per minute. At such a speed the web 1 is folded into the box without problems with the folding reels 3a and 3b pushing it into the box. If the web width is e.g. 38 mm, 15,000 meters of web, for example, can be packaged into one packing box.

In Figure 2, the packing box 7 is placed on a lifting table 8 facilitating the joining together of the web ends, as it will be possible to lower the packing box to the side of the folding reels 3, whereby it is easier to join together the web ends at their forward and tail ends in the desired manner. A similar manner of changing the distance between the folding reels 3 and the packing box 7 may naturally also be applied to the embodiment of Figure 1.

Figure 3 schematically shows how the web 1 is folded in the manner of the invention. The web 1 is folded by means of the reels 3a and 3b by rotating the reels in opposite directions so that they pull the web 1. Mechani-

cal grippers 9, to which the web 1 adheres by the action of a blade-like or strip-like projection 10, are placed at the peripheries of the diametrically placed reels 3a and 3b. Accordingly, the blade or metal strip 10 in one reel pushes the web between two spring-loaded gripper parts 9 to make the web  
5 adhere to said gripper 9. As the reels rotate forward, the reel moves the web along a path defined by the periphery of the reel to a position in which the web 1 is to be detached from the reel. In Figure 3, the web is attached to the gripper 9 of the reel 3a and is in a position where the web 1 must still be fastened to the gripper 9.

10 Very soon after the position shown in Figure 3, the reel 3a rotates to a position in which the web 1 is to be detached from the gripper 9. This can be accomplished by means of e.g. an eccentric arrangement, which opens the spring-loaded gripper 9 detaching the web. At the same moment, blades 10 on opposite sides of the reels and the gripper 9 of the second reel have gripped  
15 the web 1. In this manner the second reel 3b in turn moves the web to its side at a desired distance. Thus the web 1 can be folded in the manner shown in Figure 3 into superimposed layers 4, which form a stack 5. Let it be pointed out that the operation of the gripper 9 can be intensified by directing to the web a suction via suction openings arranged in the reel in that portion of the  
20 reel in which the web is to adhere to the reel. In fact, if desired, the entire gripper could be replaced by such a suction zone provided the properties of the web 1 allow this. On the other hand, the grippers outlined in Figure 3 achieve this reliably enough.

The ends of the webs 2a to 2e can be joined together in many alternative ways depending partly on the properties of the web, such as tear  
25 resistance, and future use of the web, e.g. if the joint can be left in the finished product or should a product containing a joint be rejected. Depending on these conditions, the webs can be joined by: sewing, taping, gluing, needling, hot sealing, ultrasound sealing, stapling or the like.

30 As shown above in Figures 1 and 2, the web 1 is folded into a packing box 7. However, it is feasible that the package is not such a box 7, but e.g. merely a plastic film. It is feasible that the web 1 is folded into a bag made of plastic film and bearing against a suitable holder. As to the web stacks which are result of folding the web, it is not very relevant what kind of outer  
35 casing supports them, as long as it allows the webs to be folded and distributed in the manner described, and the web stacks to be conveyed to the pre-

paring machine. Similarly, if the web is not placed in the package until after folding and joining of the ends, the outer cover of the package can be either a box or a plastic film, which is able to hold the stacks together suitably squeezed to achieve an optimal packaging density.

- 5           The method and package of the invention for packaging a web have been described above only by means of some exemplary embodiments and it is to be understood that the described solutions can be varied to some extent without deviating from the scope defined by the attached claims.

## CLAIMS

1. A method of packaging a web, in which method a web (1) is slit into two or more narrower webs (2a to 2e) which are folded into superimposed layers (4), **characterized** by comprising the steps of

5 directing the webs (2a to 2e) to a nip formed by two rotating reels (3a, 3b) and by inducing the webs, held alternately against the surfaces of the first (3a) and the second (3b) reel, to move with the reel the length of a pre-determined rotational angle to provide folding, and

10 joining the ends of the webs (2a to 2e) together so that the webs form a continuous whole whose length corresponds to the combined length of the webs.

2. A method as claimed in claim 1, **characterized** by joining the ends of the webs (2a to 2e) together by joining the forward/tail end of the outermost web (2a) to the forward/tail end of the adjacent web (2b), whose  
15 forward/ tail end is joined to the forward/tail end of the next web (2c), the process continuing until all webs (2a to 2e) are joined to a continuous whole whose length corresponds to the combined length of the webs.

3. A method as claimed in claim 1, **characterized** by joining the forward and tail ends of the webs (2a to 2e) in pairs, the pairs being  
20 formed at one end of the webs starting from the outermost web (2a), and at the other ends of the webs the pairs being formed starting from the next to the outermost web (2b), the webs of the stacks forming a continuous whole whose length corresponds to the combined length of the webs.

4. A method as claimed in claim 1, **characterized** by hold-  
25 ing the webs against the surface of the reel (3a, 3b) by mechanical engagement of the web by means (9, 10) disposed on the surface of the reel and/or by suction using underpressure.

5. A method as claimed in claim 1, **characterized** by joining the ends of the webs together by one or a combination of the following man-  
30 ners: sewing, taping, gluing, needling, hot sealing, ultrasound sealing, stapling or the like.

6. A package for packaging a web, **characterized** by comprising two or more side-by-side stacks (5) of superimposed web layers (4) formed by folding the web, the ends of the webs (2a to 2e) in the stacks (5)



being joined together so that the webs form a continuous whole whose length corresponds to the combined length of the webs.

5 7. A package as claimed in claim 6, **characterized** by the ends of the webs (2a to 2e) being joined together by joining the forward/tail end of the outermost web (2a) to the forward/tail end of the adjacent web (2b), whose forward/ tail end is joined to the forward/tail end of the next web (2c), the process continuing until all webs (2a to 2e) are joined to a continuous whole whose length corresponds to the combined length of the webs.

10 8. A package as claimed in claim 6, **characterized** by the forward and tail ends of the webs (2a to 2e) being joined together in pairs, the pairs being formed at one end of the webs starting from the outermost web (2a), and at the other ends of the webs the pairs being formed starting from the next to the outermost web (2b), the webs of the stacks forming a continuous whole whose length corresponds to the combined length of the webs.

15 9. A package as claimed in claim 6, **characterized** by the ends of the webs being joined together by one or a combination of the following manners: sewing, taping, gluing, needling, hot sealing, ultrasound sealing, stapling or the like.

20 10. A package as claimed in claim 6, **characterized** by further comprising around the stacks (5) a solid outer casing (7) made from e.g. corrugated cardboard or plastic film.

11. A package as claimed in claim 10, **characterized** in that the forward and tail ends of the joined continuous web are disposed outside the outer casing of the package.

Fig. 1

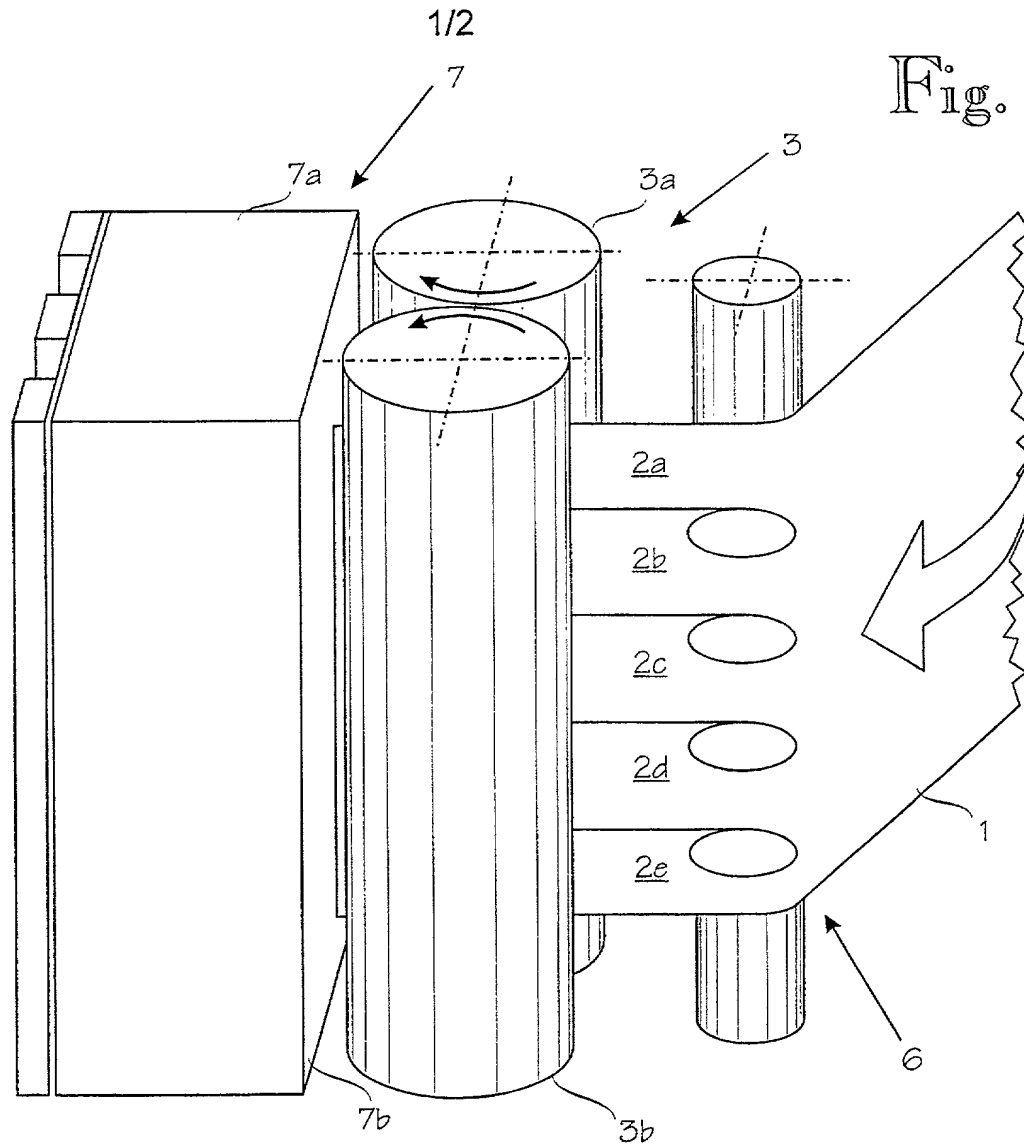


Fig. 3

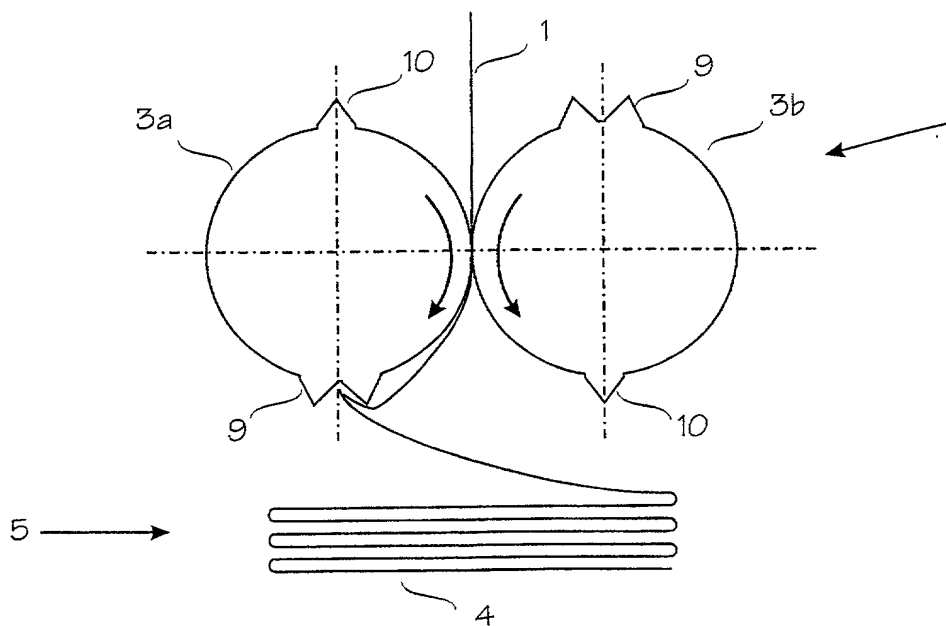
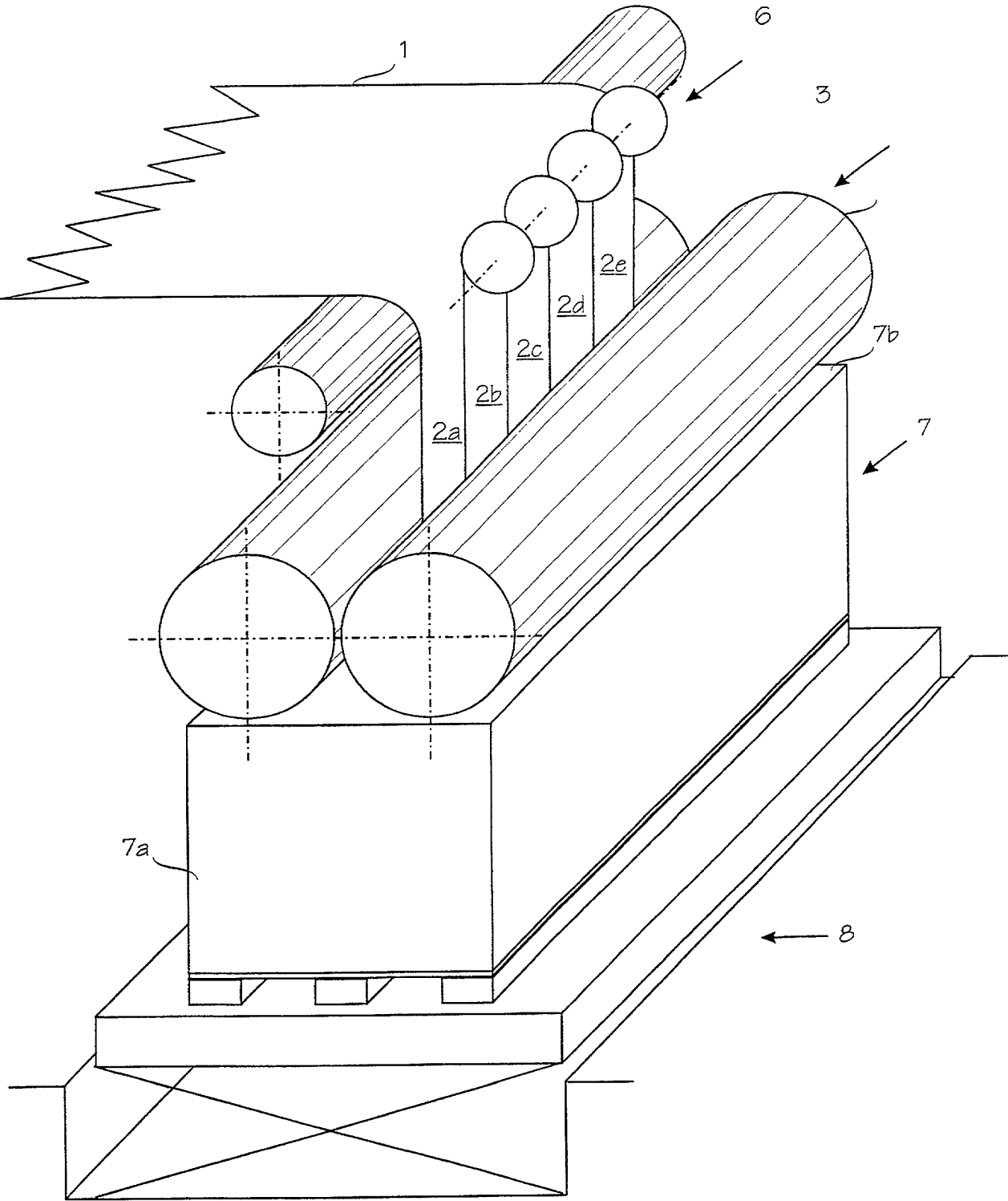


Fig. 2



**COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY**

(Includes Reference to PCT International Applications)

ATTORNEY DOCKET NUMBER

1313/1G310-US1

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed for and which a patent is sought on the invention entitled:

METHOD OF PACKAGING A WEB, AND A PACKAGE PRODUCED THEREBY

the specification of which (check only one item below):

☐ is attached hereto.

☒ was filed as United States application

Serial No. 09/582,830

on June 30, 2000

and was amended

on \_\_\_\_\_ (if applicable).

☐ was filed as PCT international application

Number \_\_\_\_\_

on \_\_\_\_\_

and was amended under PCT Article 19

on \_\_\_\_\_ (if applicable).

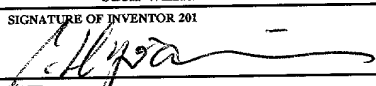
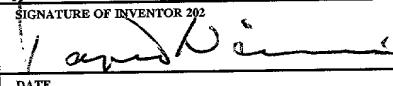

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:**

| COUNTRY<br>(if PCT indicate PCT) | APPLICATION NUMBER | DATE OF FILING<br>(day, month, year) | PRIORITY CLAIMED<br>UNDER 35 U.S.C. 119                             |
|----------------------------------|--------------------|--------------------------------------|---|
| Finland                          | 980010             | 02 January 1998                      | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| Finland                          | 982230             | 14 October 1998                      | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| PCT                              | PCT/FI98/01022     | 23 December 1998                     | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |
|                                  |                    |                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO            |
|                                  |                    |                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO            |

|   |   |  |   |   |  |
|---|---|--|---|---|--|
| <b>Combined Declaration for Patent Application and Power of Attorney (Continued)</b><br>(Includes Reference to PCT International Applications)  |   |  |   | ATTY'S DOCKET NUMBER<br><b>1313/1G310-US1</b>   |  |
| <p>I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:</p>     |   |  |   |   |  |
| <b>PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:</b>  |   |  |   |   |  |
| <b>U.S. APPLICATIONS</b>  |   |  | <b>STATUS (Check one)</b>   |   |  |
| U.S. APPLICATION NUMBER   | U.S. FILING DATE  | PATENTED   | PENDING   | ABANDONED   |  |
|   |   |  |   |   |  |
|   |   |  |   |   |  |
| <b>PCT APPLICATIONS DESIGNATING THE U.S.</b>  |   |  |   |   |  |
| PCT APPLICATION NO.   | PCT FILING DATE   | U.S. SERIAL NUMBER<br>ASSIGNED (if any)  |   |   |  |
|   |   |  |   |   |  |
|   |   |  |   |   |  |
| <p><b>POWER OF ATTORNEY:</b> As a named inventor, I hereby appoint the following attorney(s) and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. <u>Gordon D. Coplein #19,165, William F. Dudine, Jr. #20,569, Michael J. Sweedler #19,937, S. Peter Ludwig #25,351, Paul Fields #20,298, Joseph B. Lerch #26,936, Melvin C. Garner #26,272, Ethan Horwitz #27,646, Beverly B. Goodwin #28,417, Adda C. Gogoris #29,714, Martin E. Goldstein #20,869, Bert J. Lewen #19,407, Henry Sternberg #22,408, Peter C. Schechter #31,662, Robert Schaffer #31,194, Robert C. Sullivan, Jr. #30,499, and Joseph R. Robinson #33,448.</u></p> |   |  |   |   |  |
| Send Correspondence to:<br><br><div style="text-align: center;"> <b>DARBY &amp; DARBY P.C.</b><br/> <b>805 Third Avenue</b><br/> <b>New York, New York 10022-7513</b> </div>  |   |  | Direct Telephone Calls to:<br>(name and telephone number)<br><br><div style="text-align: center;"> <b>(212) 527-7700</b><br/> <b>attorney name</b> </div> |   |  |
| 2002  | FULL NAME OF INVENTOR<br><br>RESIDENCE & CITIZENSHIP<br><br>POST OFFICE ADDRESS | FAMILY NAME<br><b>HYVARINEN</b><br><br>CITY<br><b>Kotka</b><br><br>POST OFFICE ADDRESS<br><b>Maamiehentie 13 B</b> | FIRST GIVEN NAME<br><b>Paavo</b><br><br>STATE OR FOREIGN COUNTRY<br><b>Finland</b> <b>FIX</b><br><br>CITY<br><b>Kotka</b>                                 | SECOND GIVEN NAME<br><br><br>COUNTRY OF CITIZENSHIP<br><b>Finland</b><br><br>STATE & ZIP CODE/COUNTRY<br><b>FIN-48400</b> |  |
| 2002  | FULL NAME OF INVENTOR<br><br>RESIDENCE & CITIZENSHIP<br><br>POST OFFICE ADDRESS | FAMILY NAME<br><b>NIEMI</b><br><br>CITY<br><b>Kotka</b><br><br>POST OFFICE ADDRESS<br><b>Ylapellonpolku 9</b>      | FIRST GIVEN NAME<br><b>Tapio</b><br><br>STATE OR FOREIGN COUNTRY<br><b>Finland</b> <b>FIX</b><br><br>CITY<br><b>Kotka</b>                                 | SECOND GIVEN NAME<br><br><br>COUNTRY OF CITIZENSHIP<br><b>Finland</b><br><br>STATE & ZIP CODE/COUNTRY<br><b>Finland</b>   |  |
| 2003  | FULL NAME OF INVENTOR<br><br>RESIDENCE & CITIZENSHIP<br><br>POST OFFICE ADDRESS | FAMILY NAME<br><b>MAKINEN</b><br><br>CITY<br><b>Karhula</b><br><br>POST OFFICE ADDRESS<br><b>Luostarinpolku 35</b> | FIRST GIVEN NAME<br><b>Jarmo</b><br><br>STATE OR FOREIGN COUNTRY<br><b>Finland</b> <b>FIX</b><br><br>CITY<br><b>Karhula</b>                               | SECOND GIVEN NAME<br><br><br>COUNTRY OF CITIZENSHIP<br><b>Finland</b><br><br>STATE & ZIP CODE/COUNTRY<br><b>FIN-48710</b> |  |
| <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patents issuing thereon.</p>   |   |  |   |   |  |
| SIGNATURE OF INVENTOR 201   |   | SIGNATURE OF INVENTOR 202  |   | SIGNATURE OF INVENTOR 203   |  |
|   |   |                                 |   |                                       |  |
| DATE<br><b>29.08.2002</b>   |   | DATE<br><b>29.08.2000</b>  |   | DATE<br><b>04.09.2000 (Sept. 4. 2000)</b>   |  |